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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/298,926	04/26/1999	HELMUT REMBOLD	R.33554	2590
2119	7590	10/17/2003	EXAMINER	
RONALD E. GREIGG GREIGG & GREIGG P.L.L.C. 1423 POWHATAN STREET, UNIT ONE ALEXANDRIA, VA 22314			MILLER, CARL STUART	
			ART UNIT	PAPER NUMBER
			3747	

DATE MAILED: 10/17/2003

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Please find below and/or attached an Office communication concerning this application or proceeding.

## Office Action Summary

Application No.

09/298,926

Applicant(s)

REMBOLD ET AL.

Examiner

Carl S. Miller

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 12/02/02.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-25 is/are pending in the application.
- 4a) Of the above claim(s) 21,22 and 25 is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-13,16-19 and 23 is/are rejected.
- 7) ☒ Claim(s) 14-15, 20 and 24 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on \_\_\_\_\_ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

### Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

### Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) \_\_\_\_\_.
- 4) ☐ Interview Summary (PTO-413) Paper No(s). \_\_\_\_\_.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_.

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1,7,17,18,19 and 23 are rejected under 35 U.S.C. 103(a) as being unpatentable over Mathis in view of Fujino and Ishida.

Ishida and Fujino apply as per the previous office action and Mathis teaches a two-stage pump system wherein the feed to the high stage pump is variable (just as Ishida's feed is variable) and the high pressure pump is mechanically driven. Since mechanically driven high pressure pumps have been used for many years in the direct injection systems, it would have been obvious to modify Mathis by obtaining the variable capacity input to the high pressure pump as taught by Ishida. Finally, Fujino has been retained in the rejection merely to clarify the fact that it was common to regulate the flow to the high-pressure pump based upon engine parameters.

Claim 16 is rejected under 35 U.S.C. 103(a) as being unpatentable over Ishida, Fujino and Mathis as applied to claim 1 above, and further in view of Learman.

Learman applies as per the previous office action and for the reasons noted therein.

Claims 2-6 and 8-11 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ishida, Fujino and Mathis as applied to claim 1 above, and further in view of Yoshiume.

Yoshiume applies as noted in the previous office action and for the reasons noted therein.

Claims 12 and 13 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ishida, Fujino, Mathis and Yoshiume as applied to claim 11 above, and further in view of Cummins.

Cummins applies as noted in the previous office action and for the reasons noted therein.

Claims 14, 15, 20 and 24 objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Applicant's arguments filed December 2, 2003 have been fully considered but they are not persuasive.

In particular, applicant's first argument continues to be that the pump (46) of Ishida is not a pump with a variable pumping capacity. This phrase, however, is generic in nature in that there are many ways a pump can have a variable capacity. Applicant's pump is an electric pump, which (seemingly) meets this definition by using variable current to the electric motor to create variable output over time. Ishida's first pump uses a spill valve to produce variable output over time or a variable effective stroke. Both pumps are variable pumping capacity pumps. Applicant's belief that the spill valve of the Ishida pump produces a constant variable pressure output is incorrect. The spill value is an on – off valve and when the spill opens the check valve (56) closes thereby

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changing the effective capacity of the pump. This process is clearly controlled to vary the pressure in the accumulator (36) according to engine operating conditions (see column 2, lines 22-32).

Applicant's second argument is his most persuasive. In response to this argument and to clarify the rejection the examiner has changed the primary reference to Mathis so it is clear that there is no need to modify the mechanical pump of Mathis in order to meet claim 1, but merely the method of applying the variable input from the low-pressure pump.

Thirdly, to the extent that it is necessary to note (with the new rejection in mind), the booster (100) of Ishida is a pump as defined by applicant's own definition.

Finally, as noted, this rejection has been made non-final in order to give the applicant every opportunity to respond to what was essentially the same rejection in the prior office action. The objected to claims contain subject matter which clearly define the applicant's invention over the prior art. Unfortunately, the use of a variable capacity pump to feed a fuel to second pump (Claim 1) does not represent such subject matter.

Any inquiry concerning this communication should be directed to Carl Miller at telephone number 703-308-2653.

  
Carl S. Miller  
Primary Examiner